

HYPERLOOP: CONNECTING THE GREAT LAKES MEGAREGION

Business Advisory Council
June 28, 2019

Grace Gallucci
Executive Director
Northeast Ohio Areawide Coordinating Agency (NOACA)



BACKGROUND NOACA



NOACA

Metropolitan Planning Organization (MPO) for Greater Cleveland (largest in Ohio)

2.1 million population

5 counties: 166 cities, villages & towns

45 member board

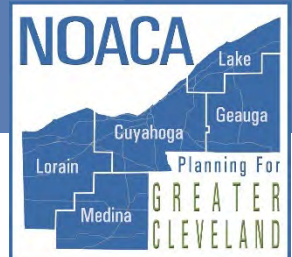


Regional Planning Agency Host/Chair: Vibrant NEO 2040

3.8 million population

12 counties: 7 legacy cities, 1200 political jurisdictions

30 member board



NOACA STRATEGIC PLAN AND VISION STATEMENT

NOACA will **STRENGTHEN** regional cohesion, **PRESERVE** existing infrastructure, and **BUILD** a sustainable multimodal transportation system to **SUPPORT** economic development and **ENHANCE** quality of life in Northeast Ohio.



BACKGROUND WHAT IS HYPERLOOP?



• HYPERLOOP IS •

A new mode of transport that will revolutionize travel
by connecting people and goods with unprecedented



A horizontal line with three large dark blue circles, each with a thick light blue border. The circles are connected by a thin black line. Between each circle is a small light blue circle. The word 'SPEED' is written in white inside the first circle, 'SAFETY' in the second, and 'EFFICIENCY' in the third.

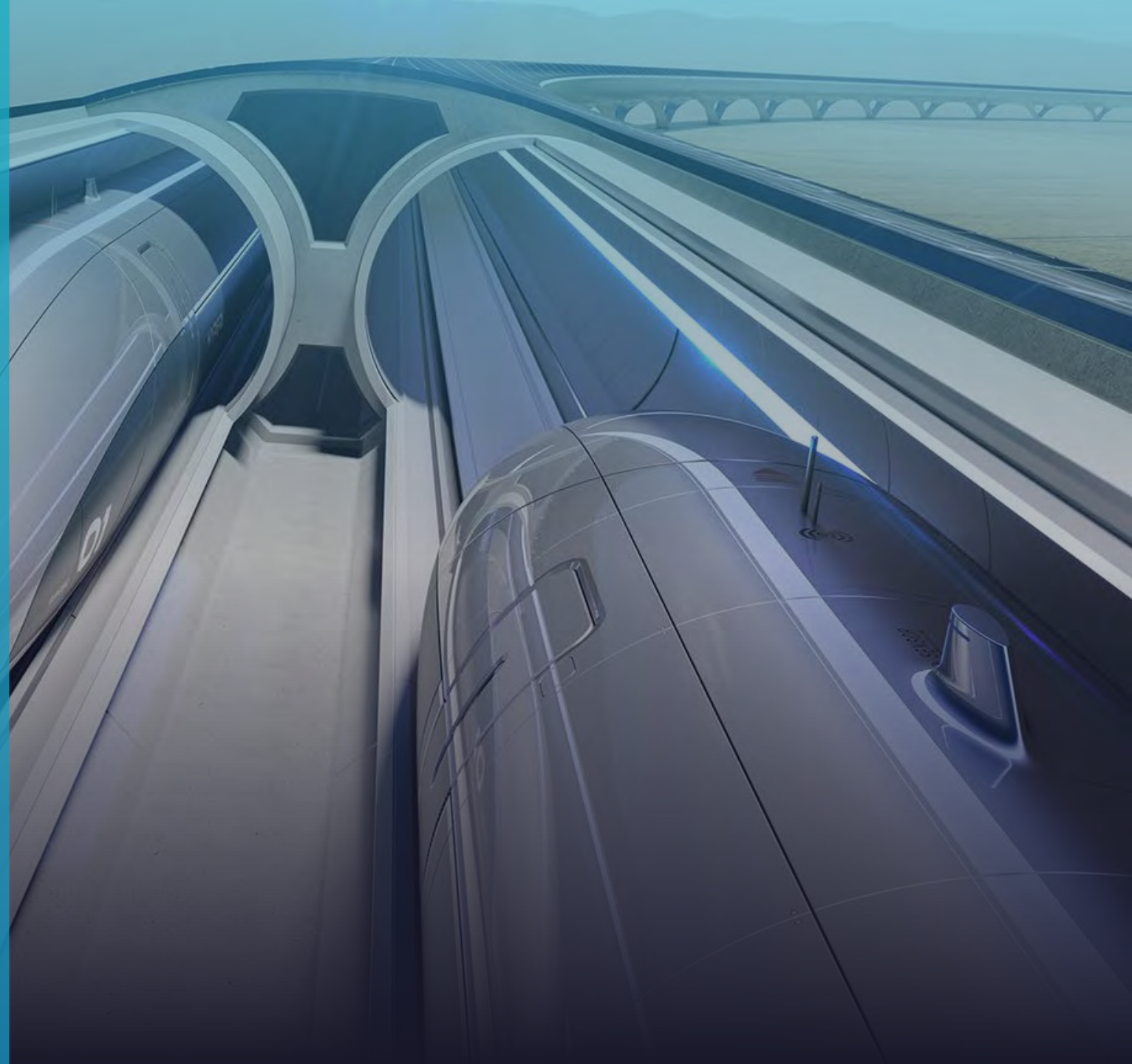
SPEED

SAFETY

EFFICIENCY

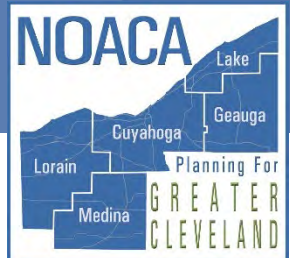
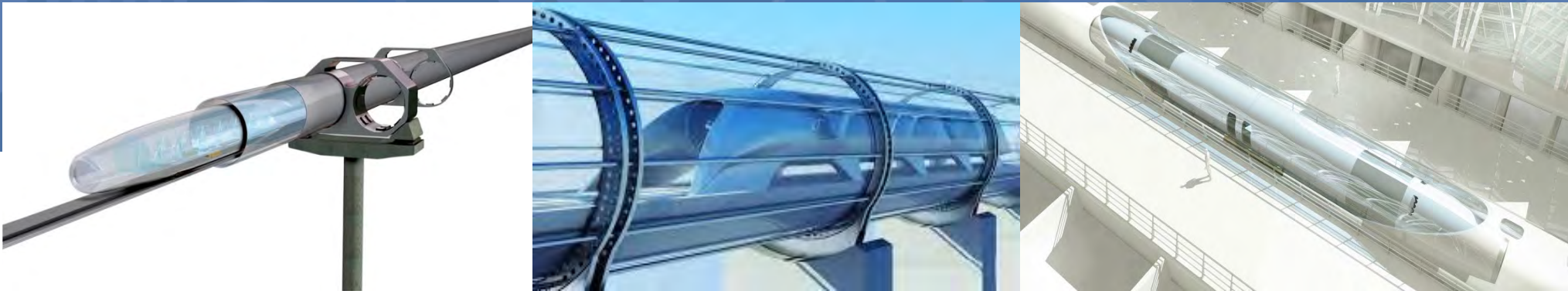
HyperloopTT System

Hyperloop brings airplane speeds to ground level, safely. Passengers and cargo capsules will hover through a network of low-pressure tubes between cities, transforming travel time from hours to minutes.

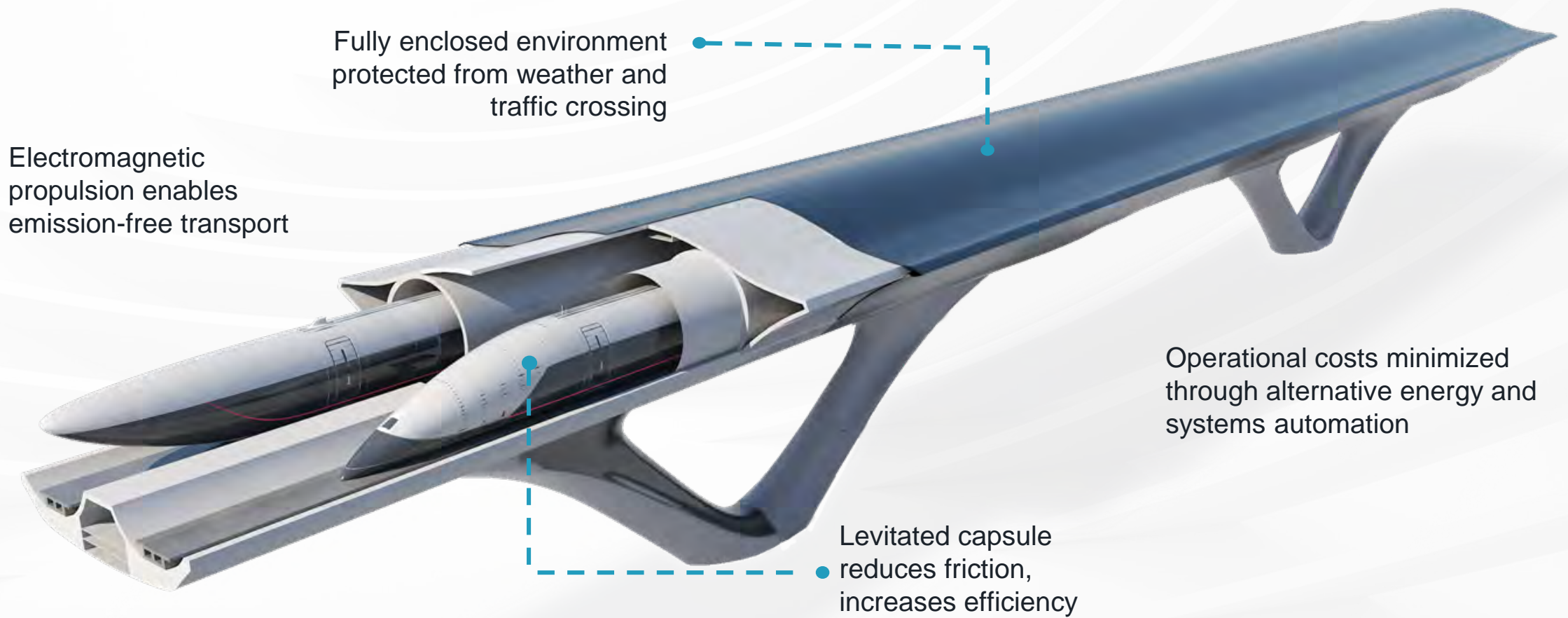


BACKGROUND

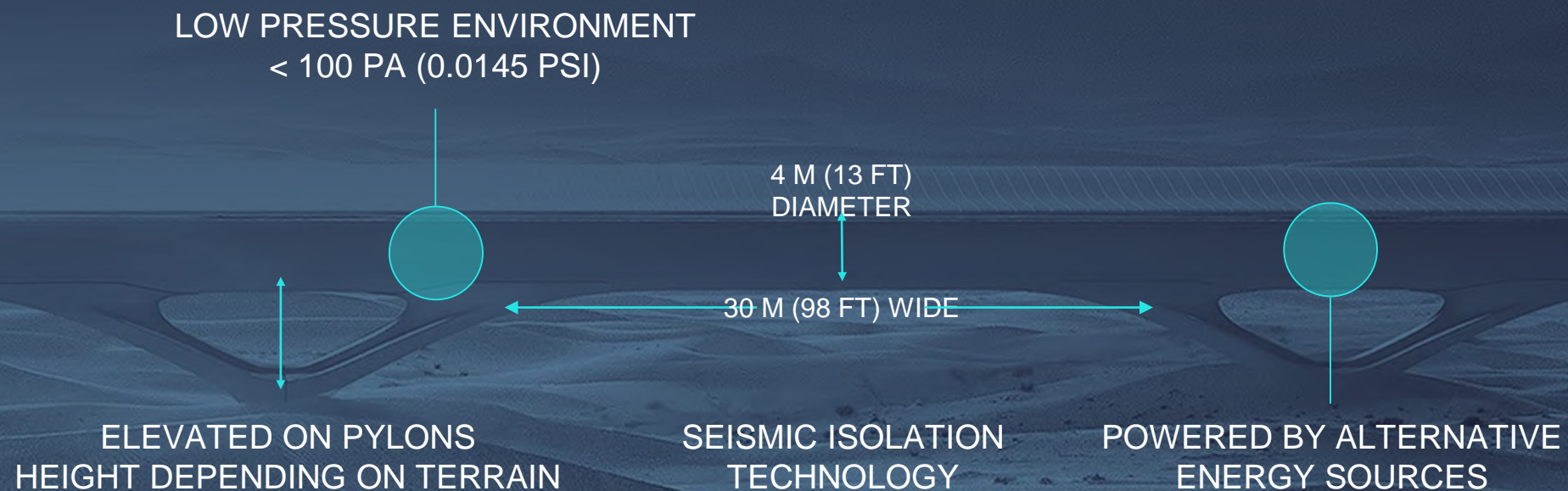
- There has been significant worldwide research and development regarding the development of a Hyperloop transportation system
- The Hyperloop concept operates by sending specially designed "capsules" or "pods" through a steel tube maintained at a partial vacuum
- Allows for the transportation of people and freight at a fraction of the time currently available through other transportation modes
- The Hyperloop concept is being pursued by several private interests looking to develop initial travel corridors, in coordination and cooperation with the United States Department of Transportation



How it works

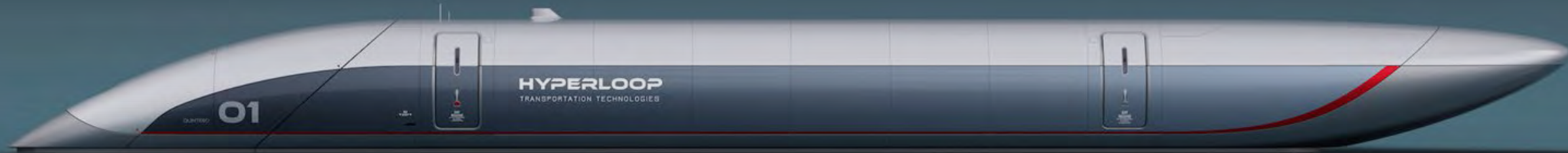


Structure



Capsule

30 M LENGTH | 20 TONS WEIGHT
2.7 M DIAMETER



PASSIVE MAGNETIC LEVITATION

ELECTROMAGNETIC
PROPULSION

↑
**1,223 KM/H (760
MPH)**
KM/H MAX /
LEVITATION
AT 40 KM/H

👤
28-40
PASSENGER
CAPACITY

👥
160,000+
PASSENGERS
DAILY

➡
4,000+
CARGO
SHIPMENTS
DAILY

Station

ADAPTIVE 40 SECOND
DEPARTURE RATE

INTEGRATED OR NEWLY
BUILT STATIONS

↔
➤ 1,450 SQ M
➤ (15608 SQ
FT)
SIZE

↩
0.1-1.6 KM
(328-5249 FT)
MINIMUM TURN RADIUS

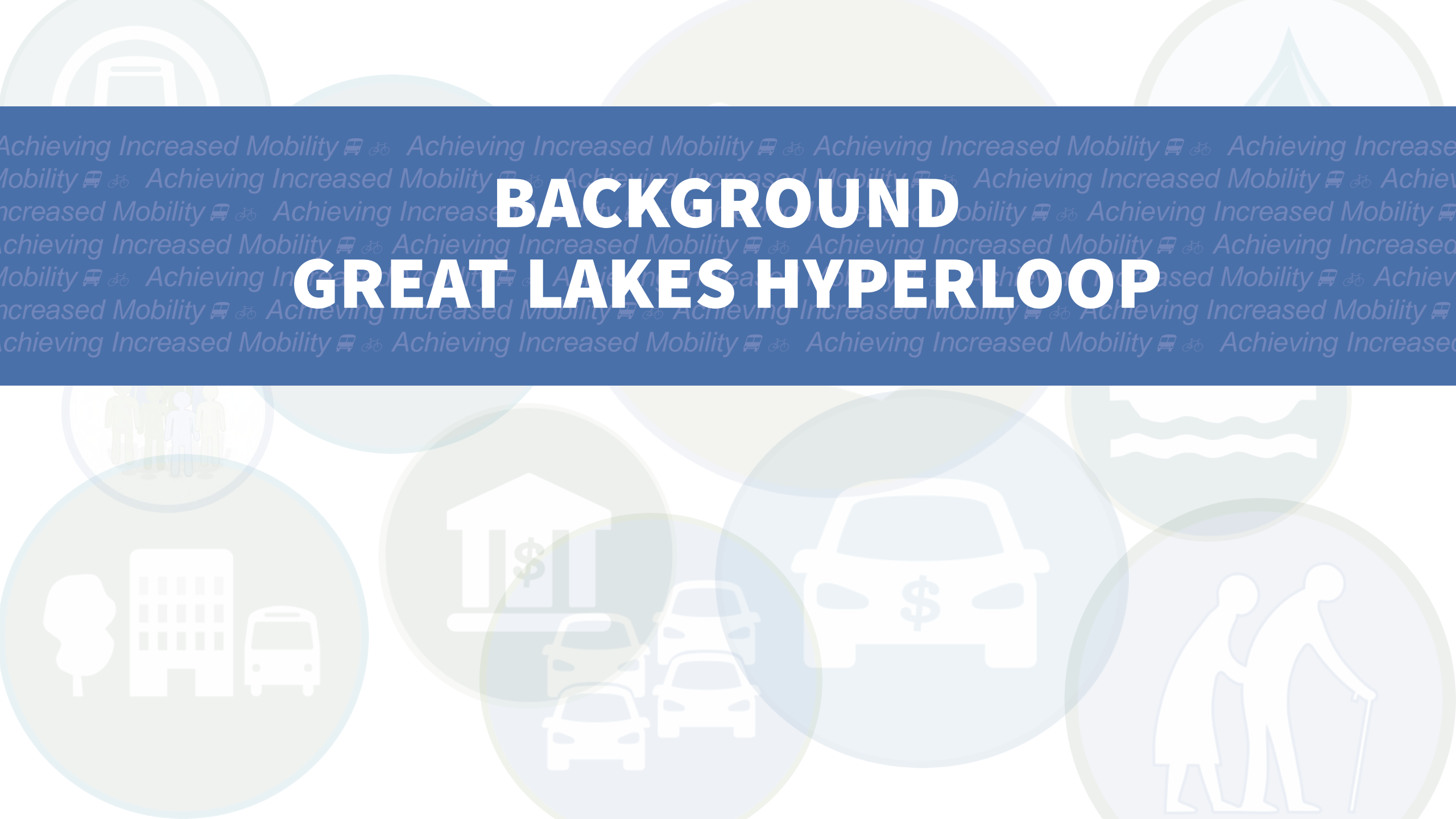
⌚
0.5G
ACCELERATION

“Imagine”



<https://www.youtube.com/watch?v=uwm3qvFWVRU>

BACKGROUND GREAT LAKES HYPERLOOP



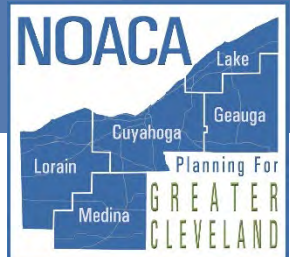
BACKGROUND

- NOACA and Hyperloop Transportation Technologies (HTT) formed an official Public Private Partnership (P3) on February 26, 2018
- Announced plans for the Great Lakes Hyperloop starting with a feasibility study from Cleveland to Chicago.
 - Alternatives
 - Technical & Financial Assessment
 - Impacts
 - Costs



BACKGROUND

- **P3 Agreement components:**
 - Obligations and Contributions
 - Partners – NOACA and HTT
 - Total cost of the study - \$1.2 M
 - NOACA (50%) - \$600 K
 - HTT (50%) - \$600 K
 - Proposed components consist of professional services, labor and funding
 - Partnership duration - until all defined services (partner and consultant) are delivered and the project completed



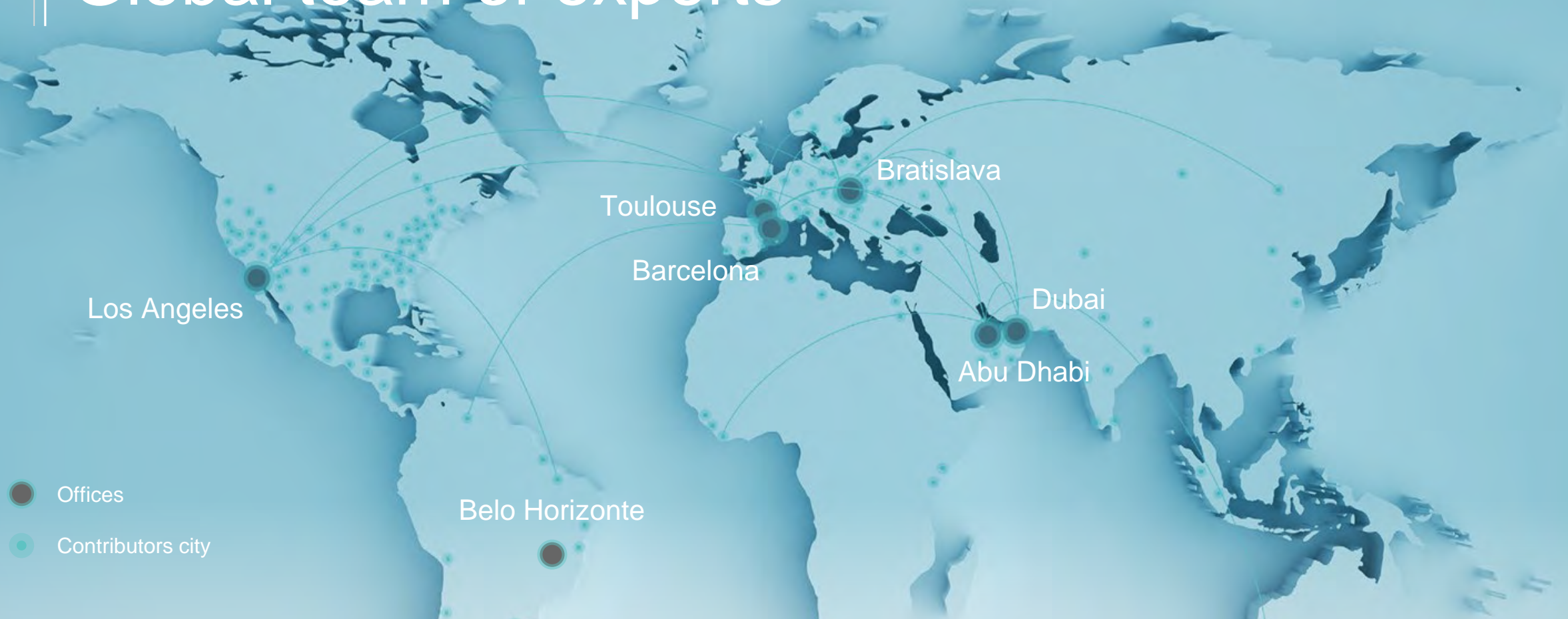
Introduction to

Hyperloop Transportation Technologies

HYPERLOOP
TRANSPORTATION TECHNOLOGIES



Global team of experts



7 Offices
50+ Partners

800+ Professionals
40+ Countries



Contributors



Partners



Universities



Crowd

Government Agreements



Abu Dhabi, UAE

- Feasibility Study completed
- Royal strategic partnership
- Agreement for the world's first commercial Hyperloop system



Toulouse, France

- Opened R&D facility for developing and testing Hyperloop related technologies
- Started construction of first full-scale Passenger & Freight prototype



Minas Gerais, Brazil

- XO Square, Global Logistics Innovation Center
- Public-Private Partnership model



Great Lakes, United States

- Public-Private Partnership agreement with broad industry consortium
- Multi-state Feasibility Study



Andhra Pradesh, India

- Pre-feasibility Study completed
- Public-Private Partnership model
- Initial focus on Andhra Pradesh



Jakarta, Indonesia

- Feasibility Study agreement
- First agreement in Southeast Asia
- Initial focus on Jakarta



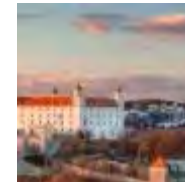
KICT, South Korea

- Co-development agreement
- Infrastructure R&D collaboration



Brno, Czech Republic

- Feasibility Study agreement
- Exploration for a Hyperloop system connecting Brno and Bratislava, Slovakia



Bratislava, Slovakia

- Pre-feasibility Study completed
- Explore building a local Hyperloop system, with the vision of creating future routes

Achievements to date



37 Trademarks

Hyperloop™ wordmark
registered internationally



39 Patents

Technology patents



Regulatory Framework

First set of Hyperloop core safety requirements and certification guidelines developed along with the first insurance framework for HTT worldwide systems



Passive Levitation

Exclusive license for
Inductrack™ from Lawrence
Livermore National Laboratory



Government Agreements

USA, Slovakia, UAE, Czech
Republic, France, Indonesia,
Korea, India, Brazil and
discussions in other regions



Hyperloop Labs

Hyperloop OS, Data & Analytics,
Comfort & Entertainment,
Augmented Workforce tools



800+ Experts

Individuals organized in 50+
teams across 40+ countries
through a crowd ecosystem
structure



50+ Corporate Partners

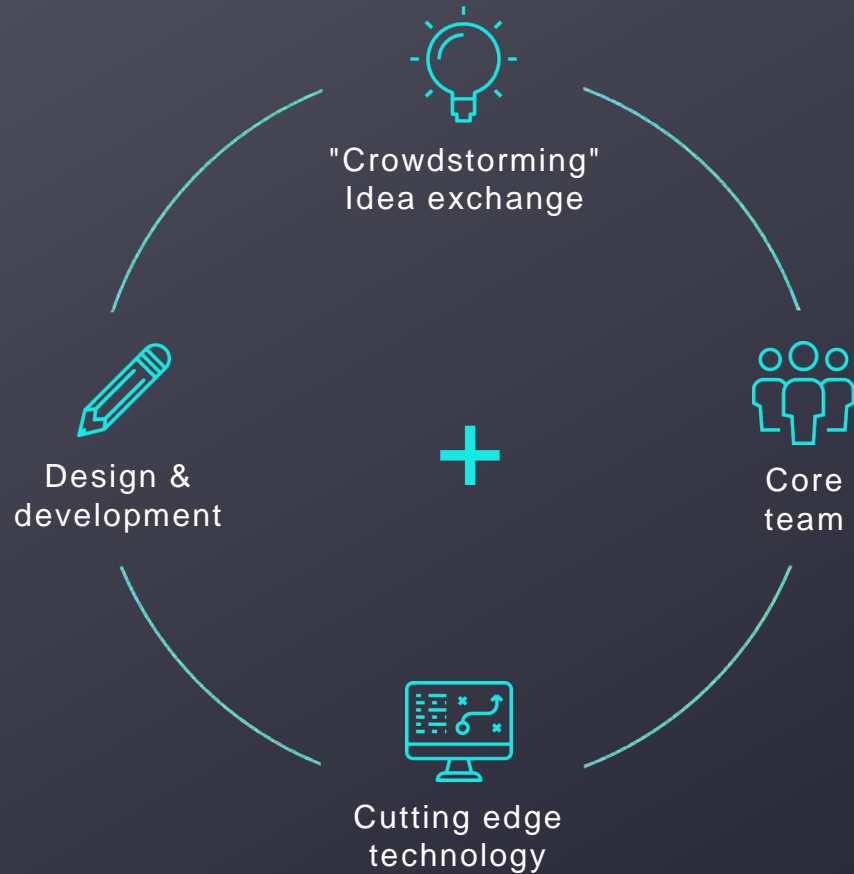
Leading international
companies

Business Model

300,000+
Community

800+
Collaborators

40+
Key Partners

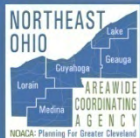


=

Innovation
Reinventing
mobility

WHY CLEVELAND TO CHICAGO? WHY GREAT LAKES?





1-90 & 1-80 UNITED STATES OF AMERICA

MAJOR CITIES



NOACA makes no representations or warranties with respect to the accuracy and/or completeness of the map.

DATA SOURCE
NOAA



- Phase 1**
- Principal Cities
 - Secondary Cities
 - Corridor
- Phase 2**
- Principal Cities
 - Secondary Cities
 - Corridor
- Phase 3**
- Principal Cities
 - Secondary Cities
 - Corridor
- State Boundary

Why Cleveland to Chicago

Opportunity

- ✓ Millions of hours are spent traveling between Cleveland to Chicago, with Hyperloop a monetized annual time savings of over \$270 million is possible.
- ✓ The region is rich in uniquely skilled and motivated workers benefiting industrial development, manufacturing and infrastructure.
- ✓ Over 10 million trips between Cleveland and Chicago are made each year.

Vision

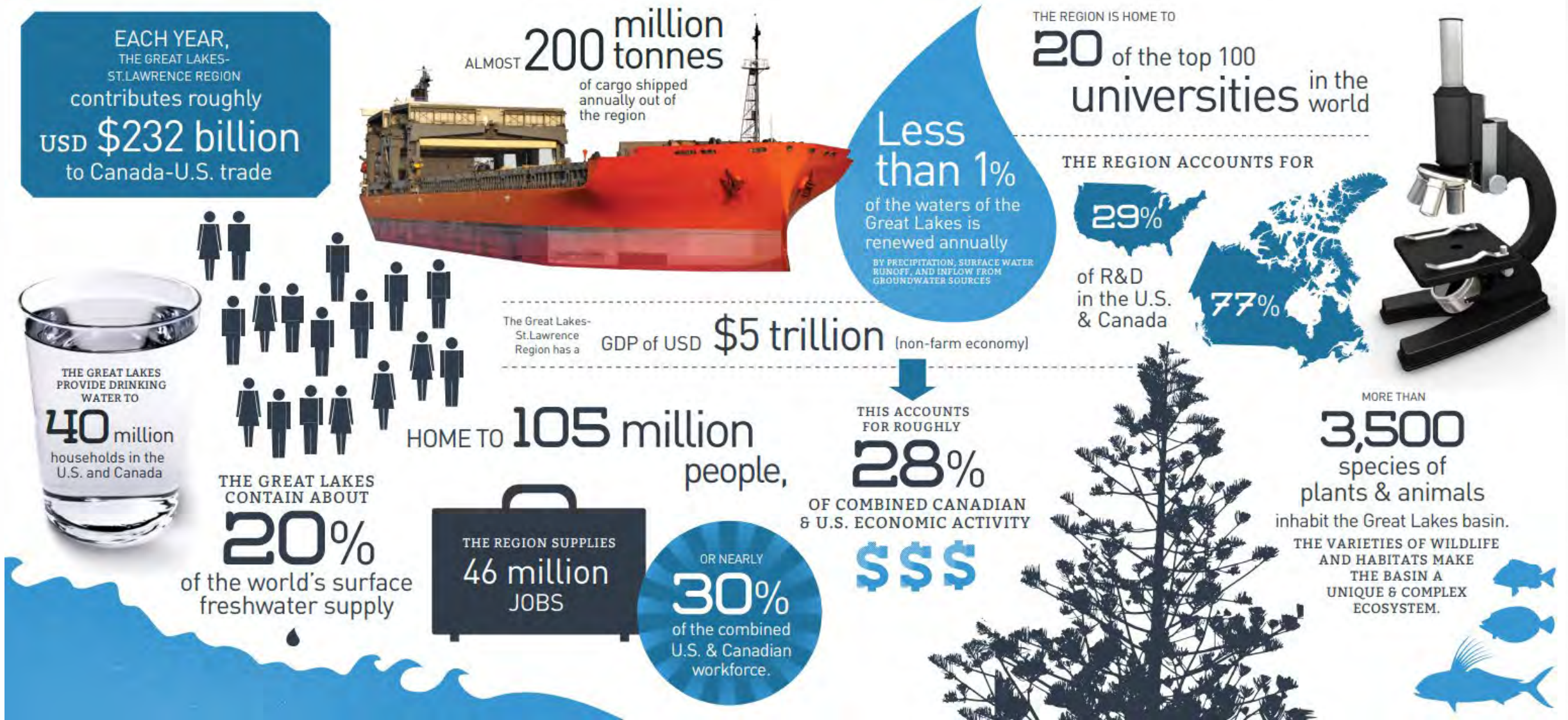
- ✓ Further support long standing commitment to innovation and ingenuity in transportation technology and modernization.
- ✓ Attract talent and guide technological advancement across the region through intellectual capital and resources.
- ✓ Lead the way in connecting the Great Lakes Megaregion becoming a key hub for the next transportation revolution.

Cleveland to Chicago in under 30 minutes

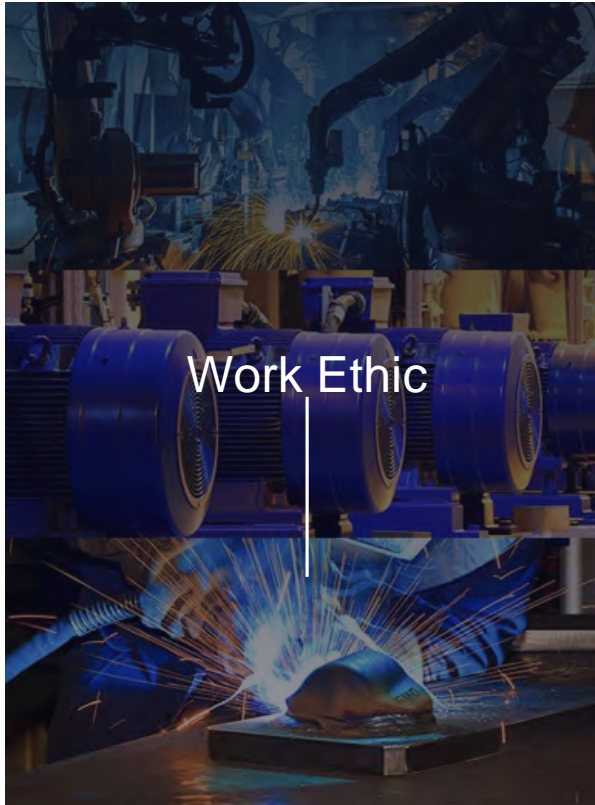
Why Great Lakes

"This is a critical corridor of commerce in the United States with millions of people and tons of cargo passing through it every year. We're pleased to be taking a historic first step towards a regional network."

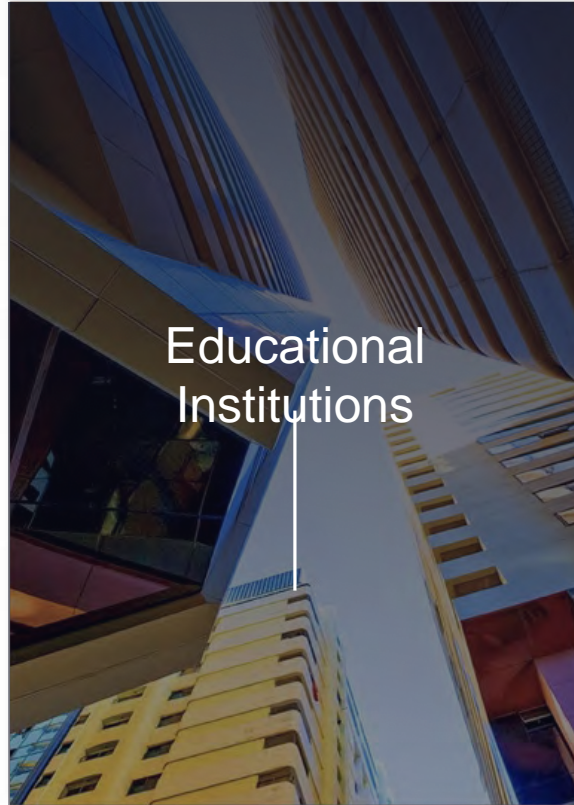
Dirk Ahlborn, CEO and Co-founder of HTT



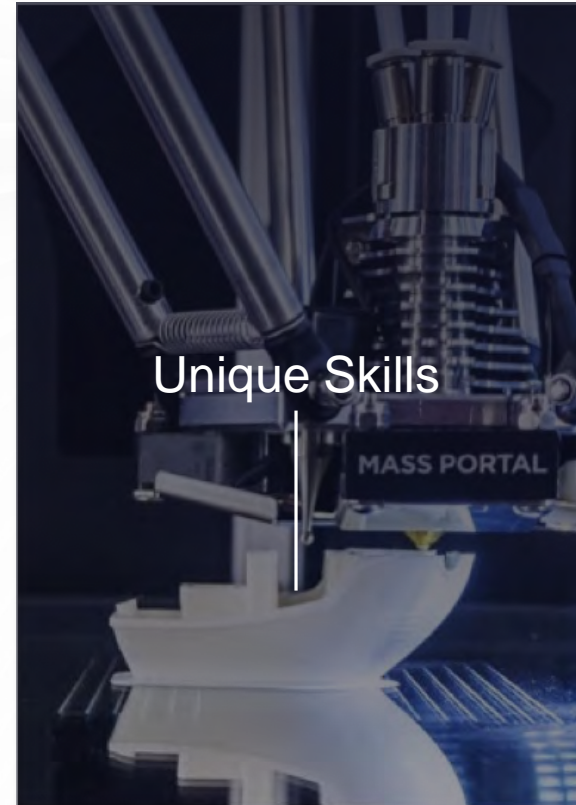
Why Cleveland to Chicago



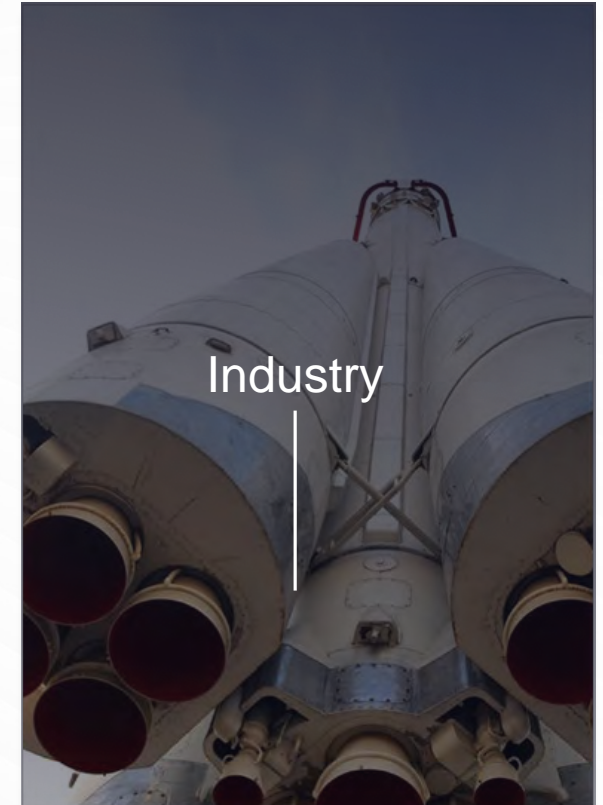
Work Ethic



Educational
Institutions



Unique Skills



Industry

“Where You Build Dreams”



https://www.youtube.com/watch?v=YMKstW3B_IA&feature=youtu.be